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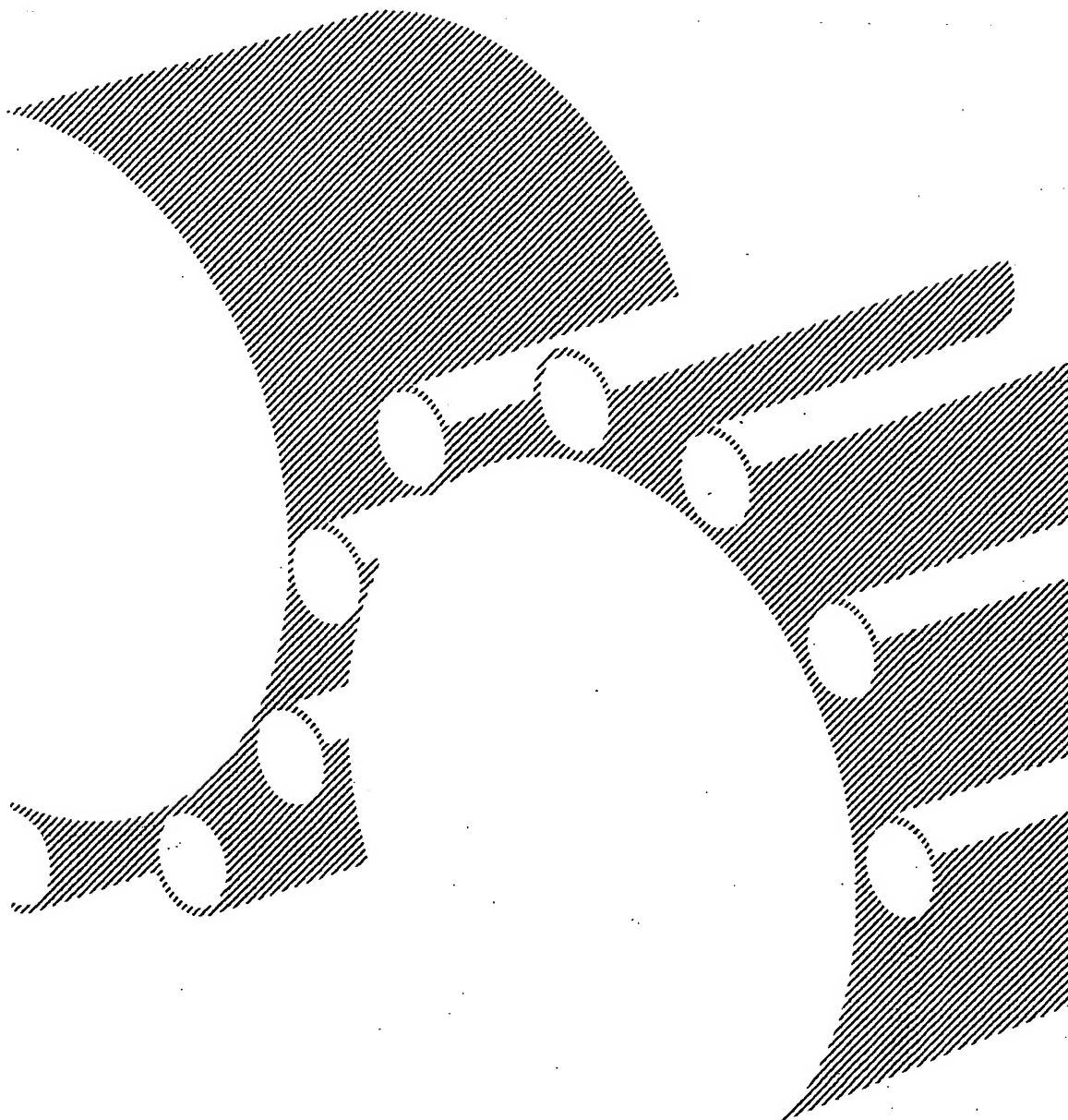
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**Operating Manual
MAX 2, No. 78**



Buch Nr.: HME.0110.04.5.e
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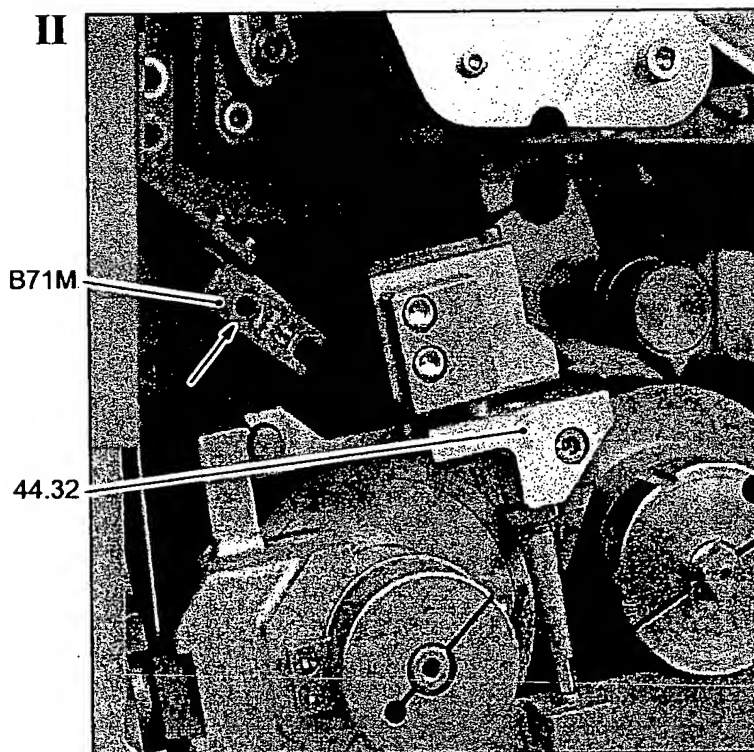
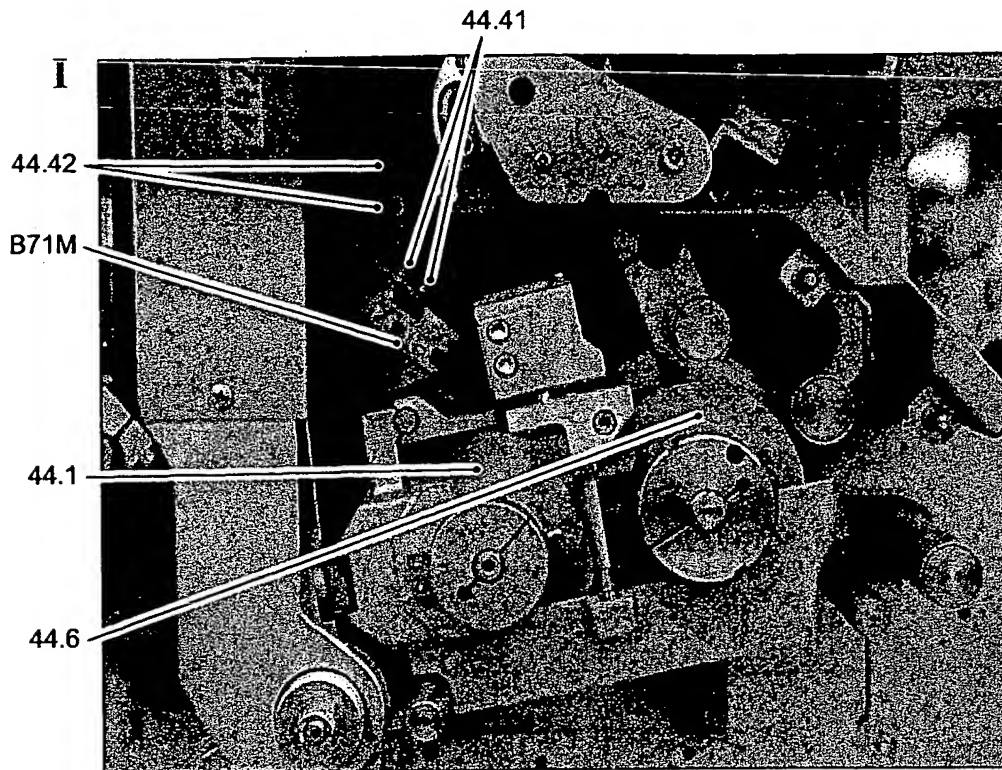
13.7 Gluing unit (44)

Purpose The gluing unit applies glue to the tipping.

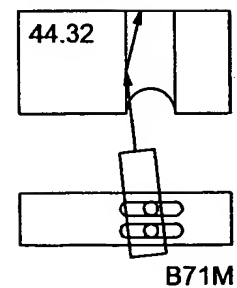
Glue pot (44.3) When the glue pot has been inserted it needs to be locked in place by operating a switch on the control panel. If it has not been inserted, the stop message NO GLUE POT will appear. If it has been inserted but not locked the stop message MAX GLUE POT POS. will appear.

Photosensor B71M monitors the glue ridge. If there is no glue ridge, the warning message MAX GLUE LEVEL appears after 30 seconds. If the condition on B71M does not change during production, the warning message MAX GLUE CIRCULATION appears after 20 seconds.

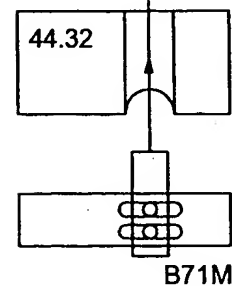
Control elements	S24M	Switch	Release/lock glue pot
Other equipment	A10M-Y69	A10M-Y72	Releases the glue pot from its working position (via cylinder).
	A10M-Y70	A10M-Y72	Swivels the glue pot into working position (via cylinder).
	B62M	Proximity switch	Monitors the glue pot.
	B69M	Proximity switch	Reports: glue nozzle in working position.
	B71M	Photosensor	Monitors the glue ridge at the right egress points of the glue chamber.

**III a**

Correct

**III b**

Wrong



**Setting
photosensor B71M**

In production mode the glue ridge forms between glue roller (44.1) and applicator roller (44.6).

The glue chamber (44.32) has two recesses via which the glue egresses and forms at each one of these a small ridge. The right-hand ridge is monitored by the photosensor B71M.

1. When being fitted for the first time or replaced, photosensor B71M must be aligned with the right-hand recess.

To perform the alignment, the machine must not be allowed to turn and the glue pot must be inserted and locked.

2. With the glue pot clean, align B71M so that the red light beam shines slightly askew into the right-hand recess.

Adjust the photosensor and bracket as needed:

To adjust the bracket slacken the two Allen screws (44.42).

To adjust the photosensor slacken the two Allen screws (44.41).

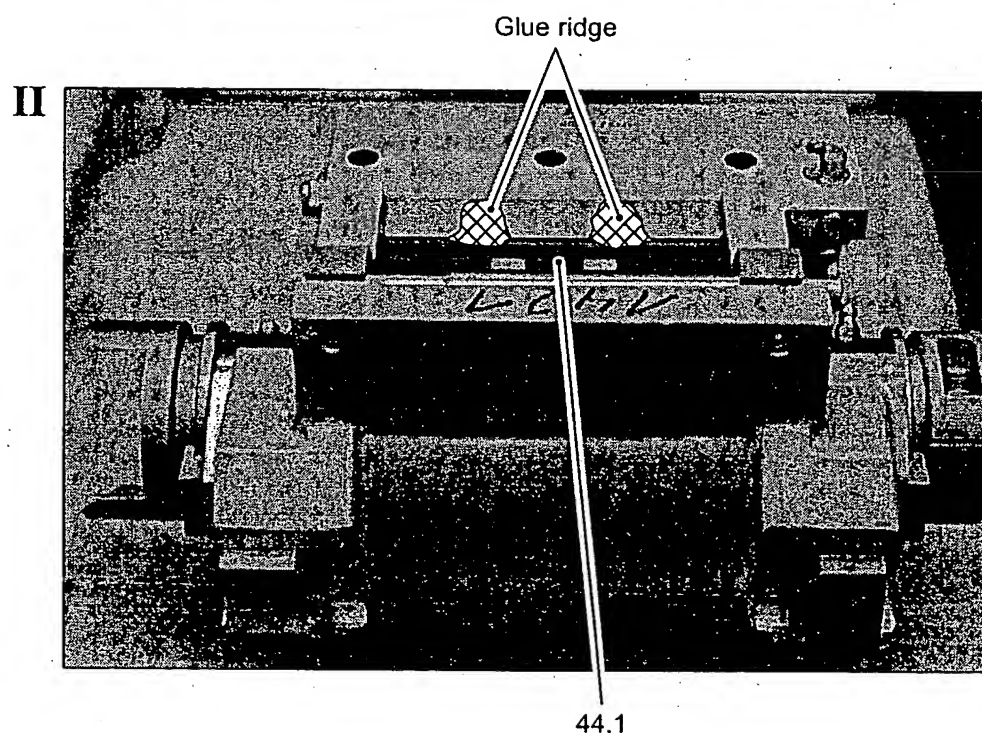
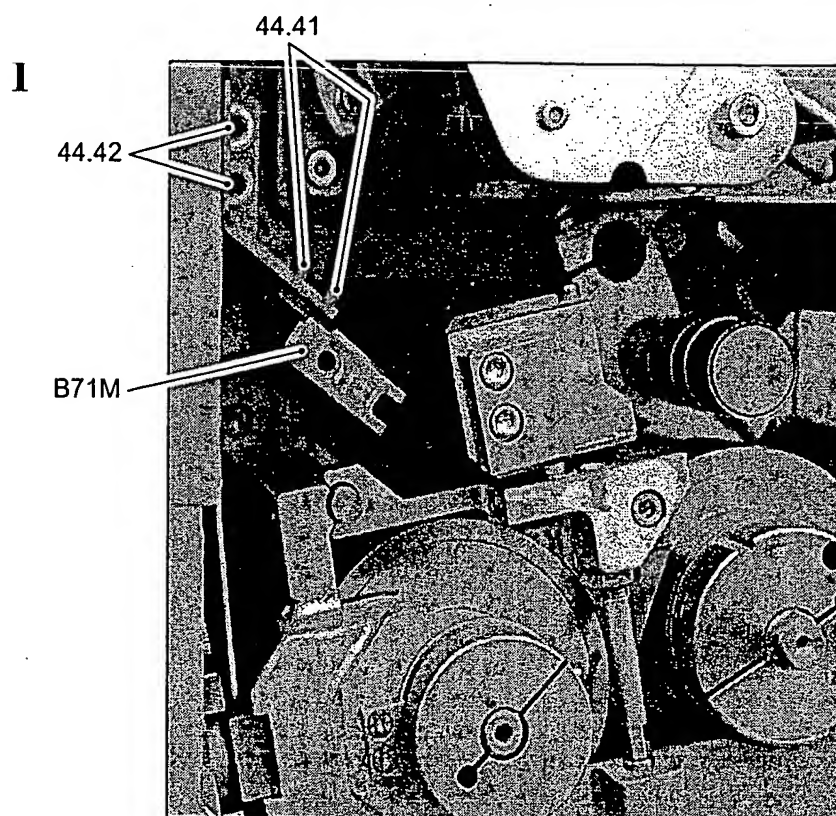
Lower switching
point

3. Set the sensitivity via the potentiometer on B71M so that B71M emits an H signal (= glue request) when the glue pot is clean.

Note

When the glue pot is clean the red light beam is partially reflected on the shiny metal surfaces. Photosensor B71M then also emits an H signal, if glue is missing.

The setting is important so that in the machine's startup phase the photosensor gives a command for glue request.



**Setting
photosensor B71M
(continuation)**

4. Set the MAX in operation and deliver glue.
5. After the machine has started up, wait until the glue ridge egresses at the recess.
This is detectable with a mirror only.

**Upper switching
point**

6. If the glue ridge egresses at the right-hand recess and slowly becomes larger, it should be located in the scanning area (= H signal area) of photosensor B71M:
The red LED illuminates.

Set the sensitivity on the potentiometer on B71M so that B71M briefly maintains glue delivery while the glue ridge is growing larger and then switches off (= L signal).

The glue ridge must not become too large; otherwise the glue will run over the side.

If the glue ridge becomes smaller again after the pressure pump is switched off, B71M must briefly switch on glue delivery again (= H signal).

During production this switching action must be repeated regularly, switching intervals (↑ 13 – 55).

The red light beam from B71M must be constantly directed at the glue ridge. Otherwise the mechanical adjustment has to be corrected; see points 1 – 2.

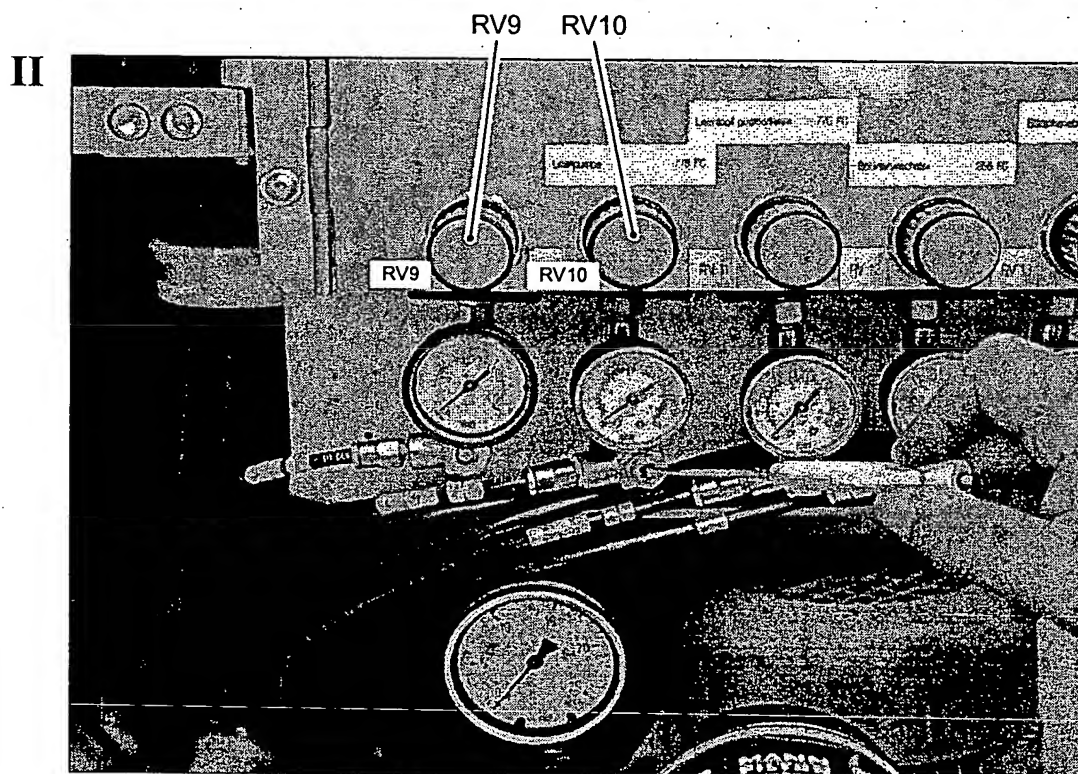
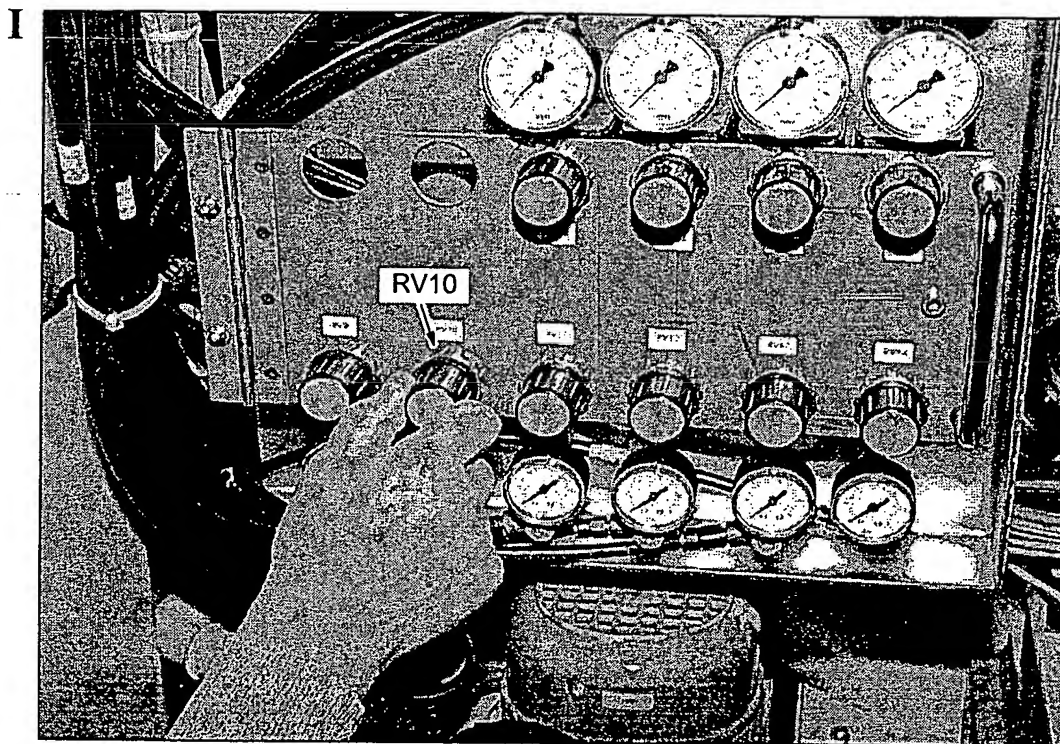
7. After adjusting, retighten the screws (44.41) and (44.42).

Note



The switching points define the area in which the photosensor B71M always detects the glue ridge (= H signal area).
Outside of this area B71M always gives an L signal.

This area cannot be altered, but only shifted (via potentiometer).



**Setting
photosensor B71M
(continued)**

8. The delivery volume of the pressure pump should be 0.1 l/min.
The pressure pump operates only in response to a prompt for glue from photosensor B71M.

Desired ratio of running time to idle time for the pressure pump:
 $\approx 1:3$ when the machine is at a standstill.
 $\approx 1:1$ to $1:0.5$ in production,
 depending on the machine speed.

The suction pump does not run continuously:
 Run time approx. 0.5 s
 Pause approx. 10 s.

9. Set the delivery volume (pressure) by means of the throttles underneath the control valves RV9 and RV10 as follows:

RV9 (pressure pump) = 3 bar
 RV10 (suction pump) = 3 bar.

Note



The viscosity of the type of glue used has an effect on this setting.

On both throttles, screw in the grub screws fully and then back out again a little:

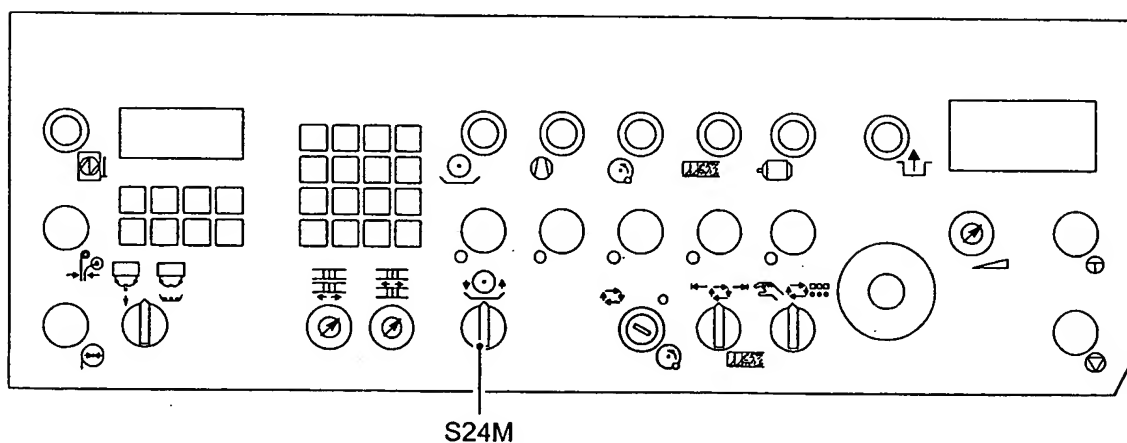
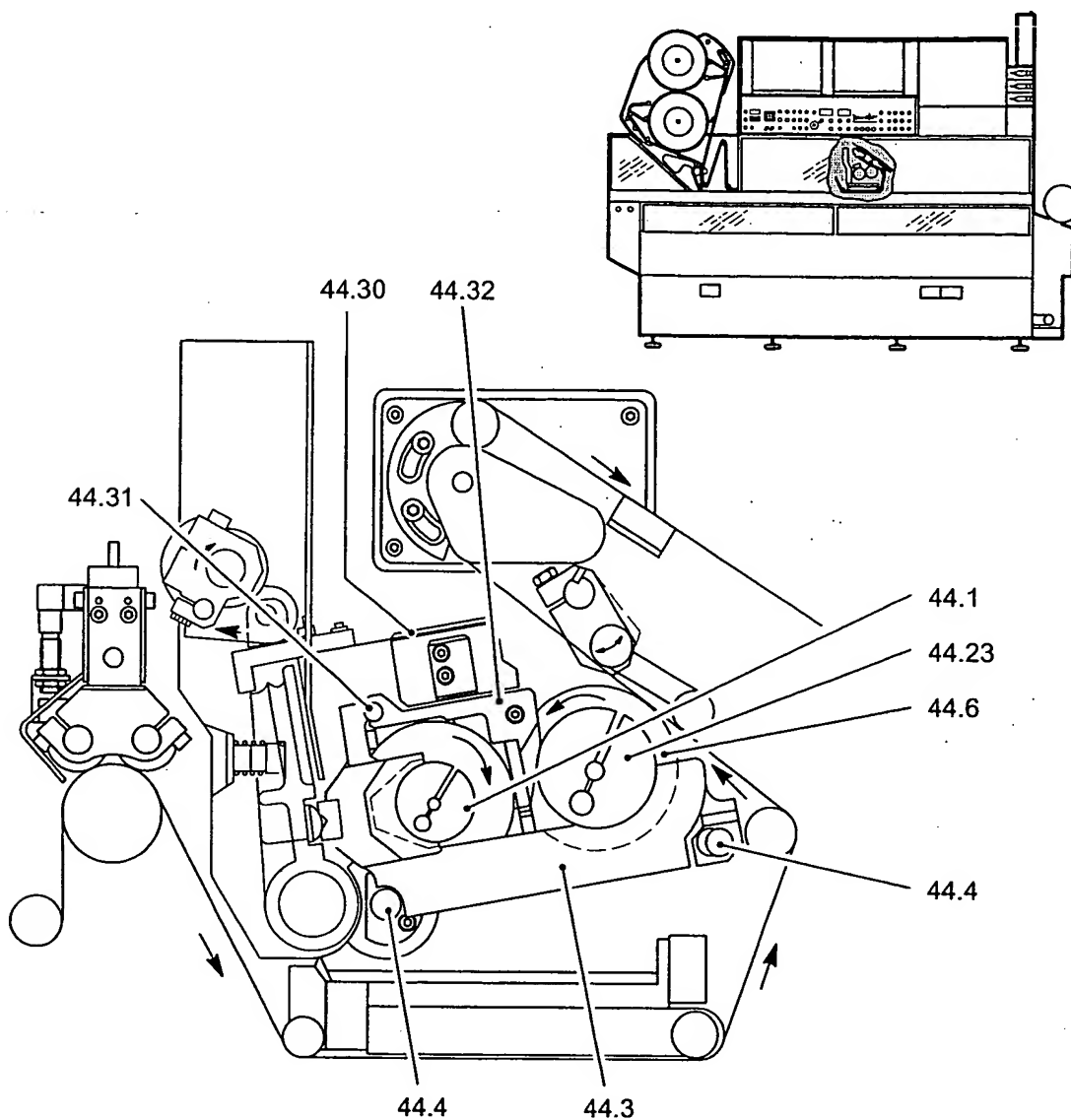
Throttle on RV 9: 1 to 2 revolutions
 Throttle on RV 10: 2 to 3 revolutions.

Check ratio of running time : idle time (= switching frequency of B71M) on the pressure pump once again.

- The setting of the throttle on RV 9 (pressure pump) influences the size of the glue ridge.
- The setting of the throttle on RV 10 (suction pump) influences extraction.

The suction pump may only work at minimum delivery volume; at excessively high delivery volume, it can take in air.

Air bubbles in the glue circuit can lead to the glue spraying out of the glue nozzle.



**Glue pot, (44.3)
insertion**

1. Place glue pot (44.3) with glue roller (44.1) and applicator roller (44.6) on guide bolts (44.4). The applicator roller slides over its related shaft.
Glue chamber (44.32) must slide on guide bolts (44.31). Carefully slide all parts uniformly backwards against the stop. The parts must not be skewed.
2. Carefully tighten knurled screw (44.23), this action also causes the parts to move a fraction backwards.

Note

When tightening the knurled head screw (44.23) the claw on the drive of the applicator roller engages into one of the corresponding depressions in the roller body. Before tightening the knurled head screw (44.23) allow the claw to engage!

The rear clutch pawls must engage in glue roller (44.1) via the drive clutch.

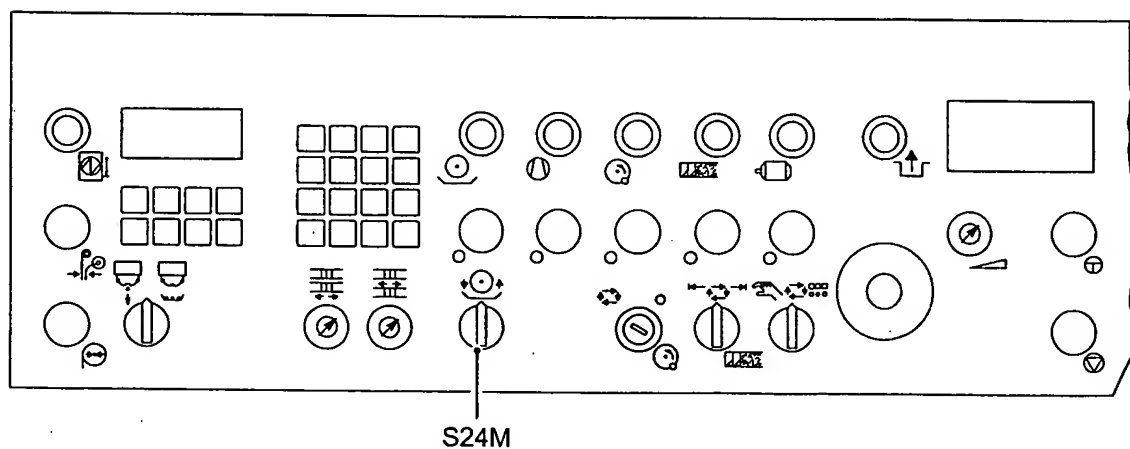
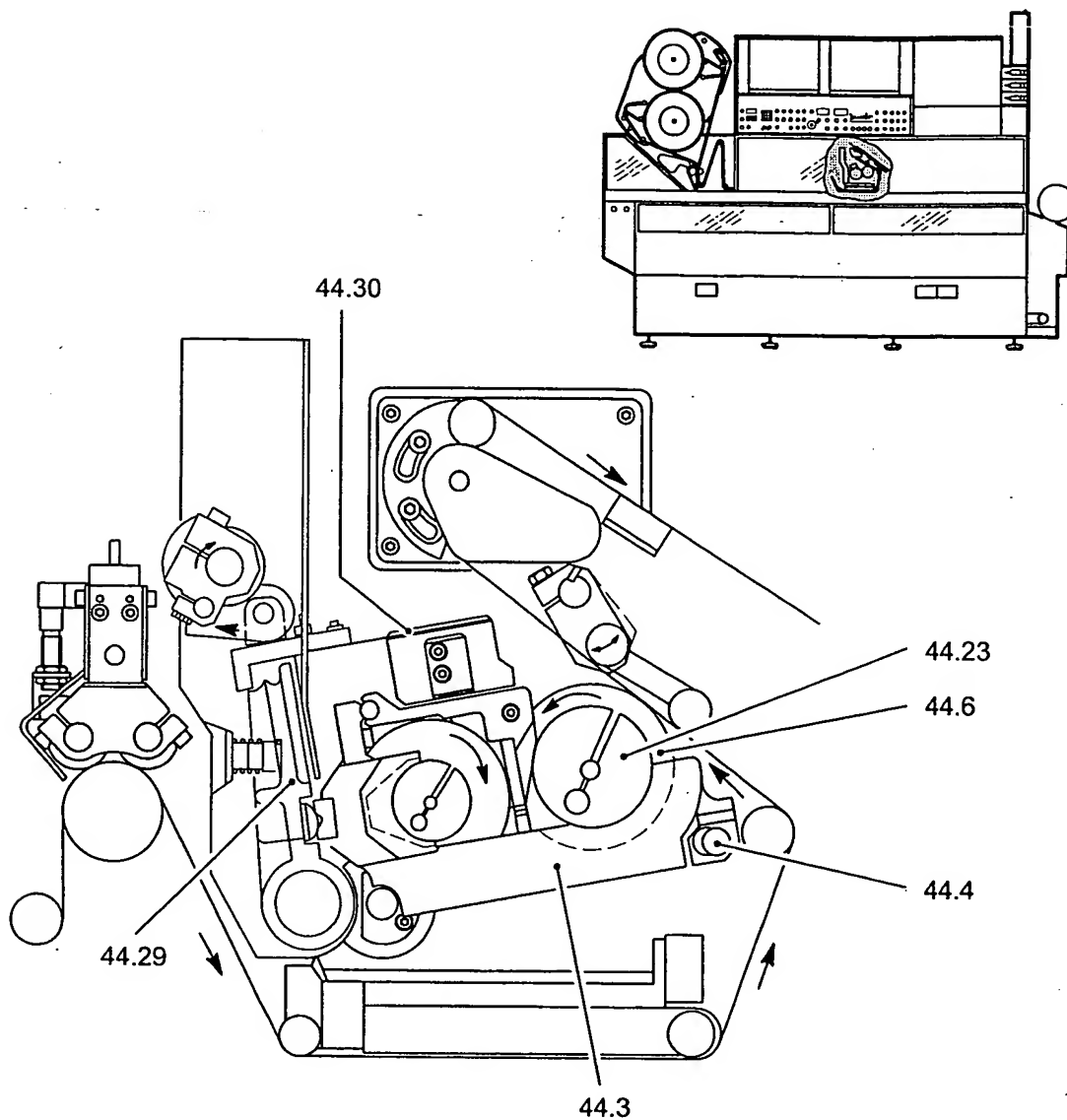
**Important**

Tighten knurled screw (44.23) and also the **clamping fixture**, this ensures the applicator roller cannot work loose and rub against the glue chamber.

**Important**

Valve block (44.30) must always be swung into the raised position when fitting glue pot (44.3) into position. This is necessary to prevent damage to the rubber seals on the underside of the valve block!

3. When the glue pot has been fitted correctly into place, briefly swing switch S24M to the "lock glue pot" position. The glue pot is locked into place: the moveable-mounted glue roller is pressed against the rigidly-mounted applicator roller.



**Glue pot, (44.3)
removal**

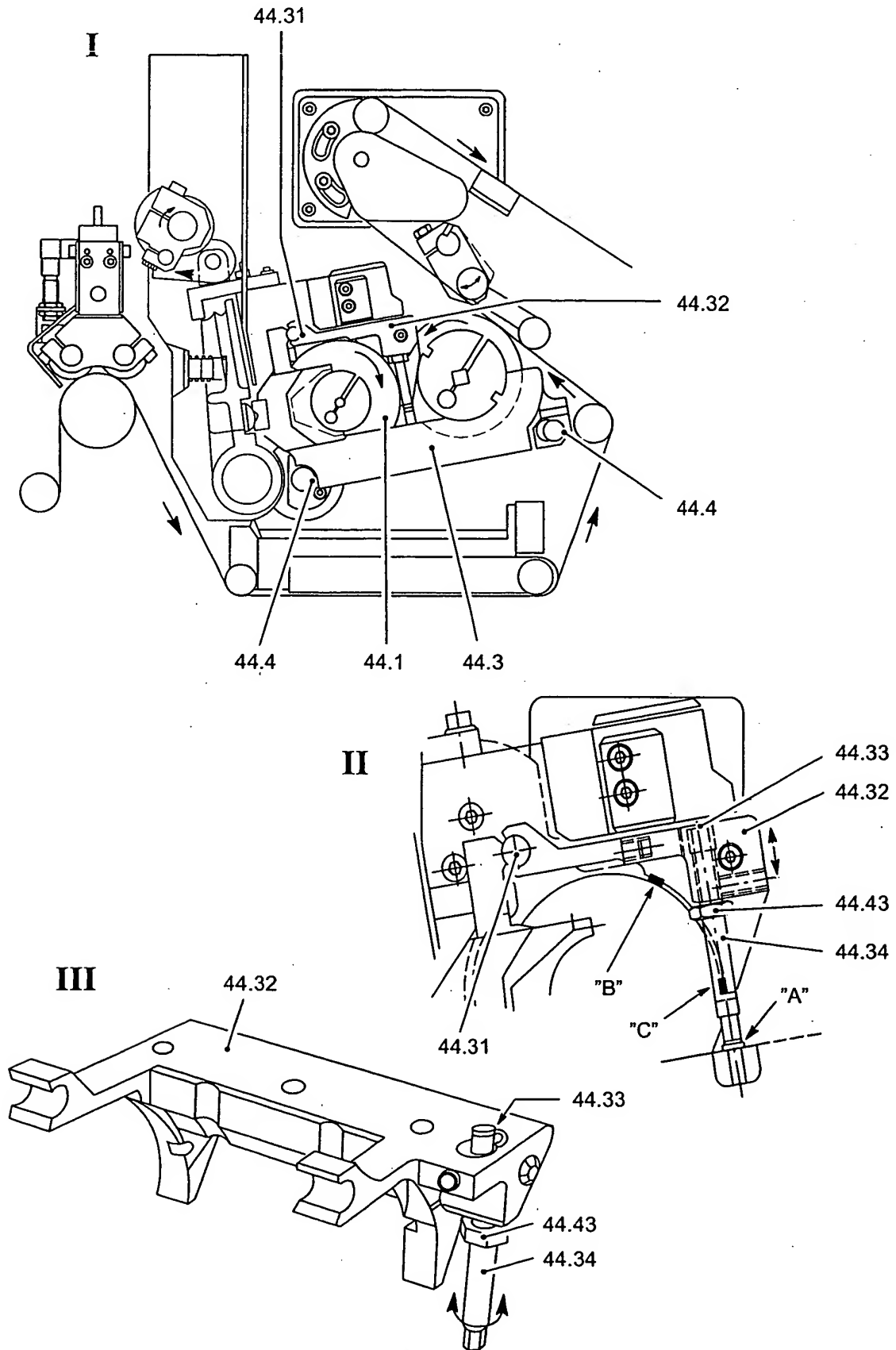
1. Briefly set switch S24M to the "release glue pot" position. Glue pot (44.3) is released.

Valve A10M-Y69 enables the compressed air feed to compressed air cylinder Z1. Valve A10M-Y69 is without electricity and the glue pot can now be removed. Access to air cylinder Z1 is obtained when the gluing unit is detached from the base plate.

Lever (44.29) swings to the left to release the glue pot, and it acts via a carrier pin to press valve block (44.30) up clear of the glue rollers against the pressure of a tension spring.

The three valves in the valve block are automatically closed by pneumatically operated plungers (A10M-Y68/2).

2. Release the clamping action on knurled screw (44.23).
Grip the square nut protruding from the knurled screw (44.23) using an open-end spanner (size 13) and slacken the knurled head screw (44.23) with a sickle spanner.
After slackening it, undo the knurled head screw (44.23), while pulling the applicator roller (44.6) forwards a little.
3. Pull the glue pot together with the rollers and the glue chamber on guide bolts (44.4) clear as a complete unit.



Setting the glue chamber (radial)

Setting the glue chamber (44.32) relatively to the glue roller (44.1).

Note

The glue pot (44.3) does not have to be installed.

1. When glue pot (44.3) is removed from the machine and dismantled for cleaning purposes, glue roller (44.1) must be reinserted in glue pot (44.3).
2. Place glue chamber (44.32) on guide bolts (44.31) and slide it back and swing it down against the glue roller (44.1).
Slacken lock screw (44.33) (socket head screw) on vertical setscrew (44.34).
Slacken the hexagon head screw (44.43) of the vertical setscrew (44.34).
3. When the glue chamber (44.32) is swung down the vertical setscrew (44.34) comes into contact with the glue pot stop "A".
Gap "B" is the distance between the glue chamber and glue roller; this gap is set with vertical setscrew (44.34), whereby the glue chamber swivels slightly on the axis of guide bolt (44.31).

Note

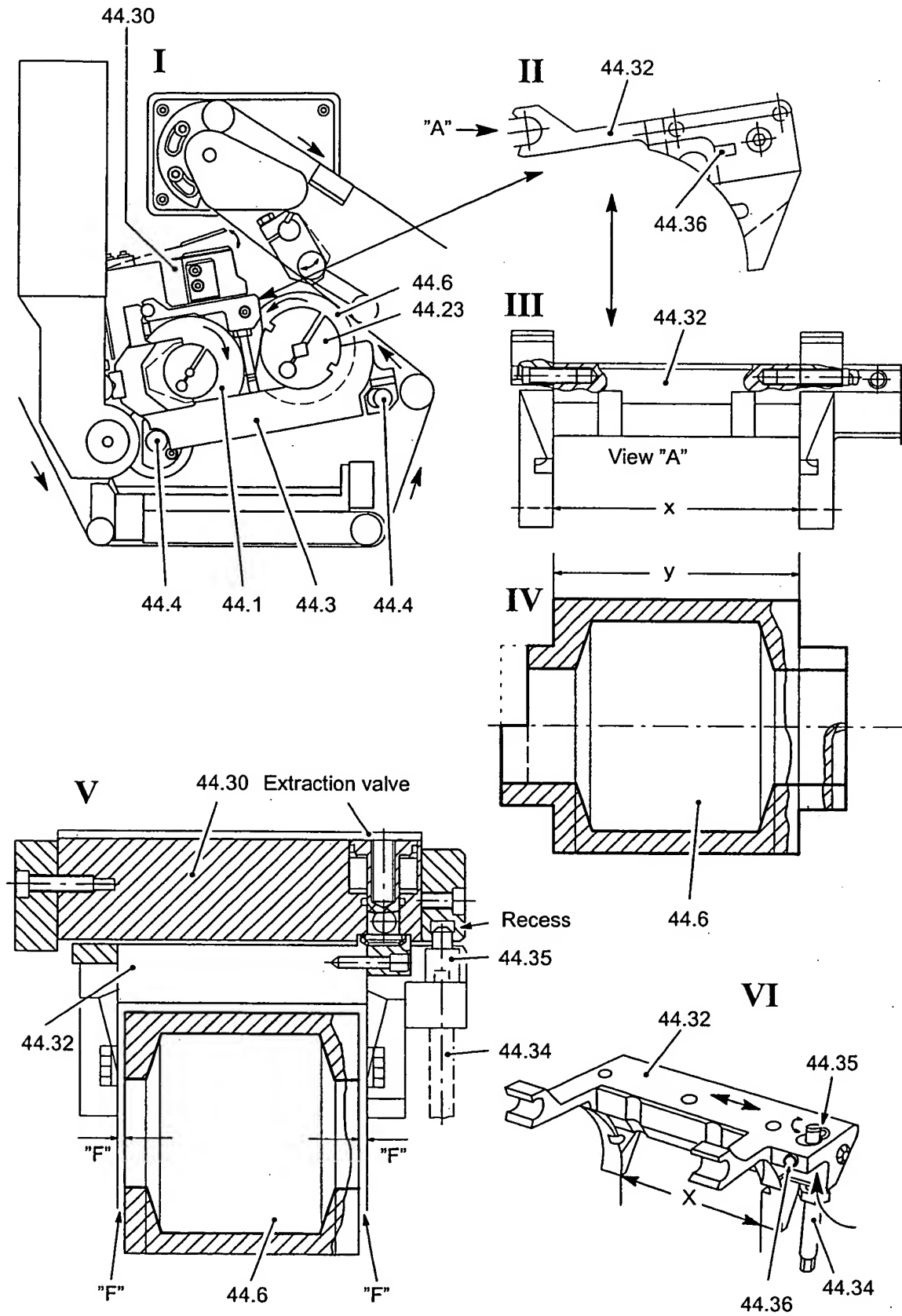
The vertical setscrew must lie under glue pot stop "A" when the setting is made, if necessary press glue chamber (44.32) manually downwards.

4. At the top of the glue chamber inlet (point "B") insert a feeler gauge between glue chamber and glue roller. The gap must be **0.05 to 0.1 mm**.
Set the correct distance with the vertical setscrew.
Hold the vertical setscrew (44.34) and tighten lock screw (44.33).
The vertical setscrew may not be allowed to move while this is being done.
Tighten locknut (44.43).
This setting automatically produces a gap of 0.3 mm at the glue chamber discharge (point "C").
The values for "B" and "C" must be the same front and rear so that the glue chamber is not seated askew.
5. Reinsert glue pot (44.3) into the machine.

Note

Before installation, measure the two dimensions "X" and "Y" (↑ 13 – 63). These dimensions are required for the axial setting.

6. If the glue pot has been inserted into the machine and locked, the gap of between **0.05 and 0.1 mm** must be checked again.



Setting the glue chamber (axial)

Setting the glue chamber (44.32) relative to the applicator roller (44.6).

1. This setting cannot be made unless the following dimensions are known before the work commences:

Dimension "X" = clearance between glue chamber sides

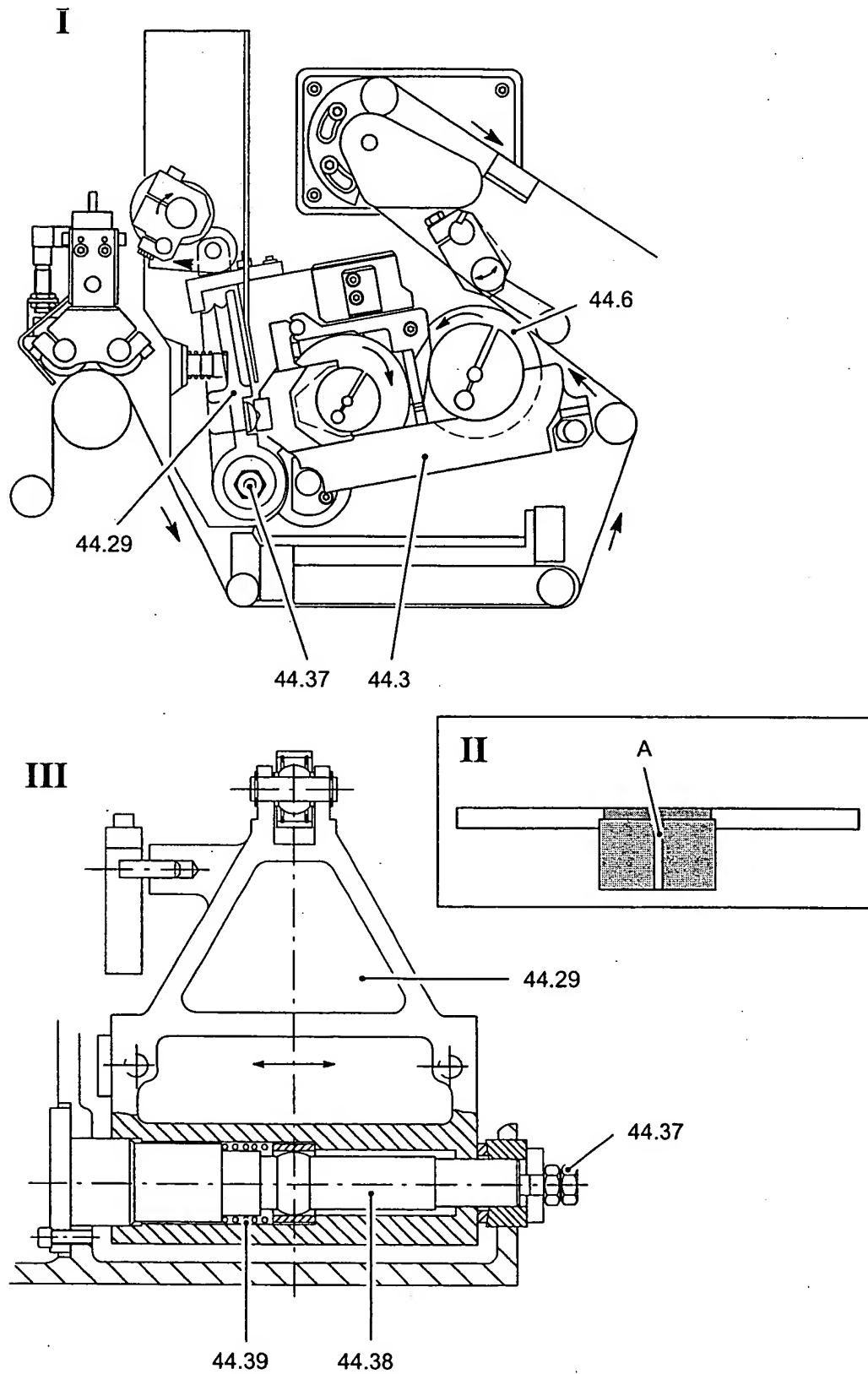
Dimension "Y" = applicator roller axial length

2. Place glue pot (44.3) together with glue roller (44.1) and applicator roller (44.6) on guide bolts (44.4) and push backwards up to the stop.
3. Carefully tighten knurled screw (44.23), this action also causes the parts to move a fraction backwards.
The claw on the drive of the applicator roller must engage in one of the corresponding depressions in the body of the roller when the knurled head screw (44.23) is tightened.
The rear clutch pawls must engage in glue roller (44.1) via the drive clutch.
4. When the glue pot has been fitted correctly into place, briefly swivel switch S24M to the "lock glue pot" position. The glue pot is locked into place.
5. Slacken lock screw (44.36) in cam (44.35).

Note

Cam (44.35) on glue chamber (44.32) must engage in the relevant recess in valve block (44.30).

6. Adjust cam (44.35) with a hex. screw key from below (curved arrow, sketch VI) until gap "F" between the sides of glue chamber (44.32) and the front sides of the applicator roller is the same on both sides.
The gap F is calculated according to the formula
$$F = (X - Y) : 2$$
7. Retighten lock screw (44.36) on cam (44.35).



**Glue-free zone,
setting****Required:**

Setting the glue pattern on the tipping material.

If the cut does not pass through the centre of the glue-free zone.

The glue pattern cannot be set unless the tipping material runs exactly centrally to the centre of the machine:

Gap between centre of tipping material web and surface of gear plate
= 230 mm

The glue pattern on applicator roller (44.6) must show a distinct and sharp line at the glue-free zone "A" (sketch II).

**Glue pot,
adjustment**

Axially adjust glue pot (44.3) to change the position of glue-free zone "A":

Note

The glue pot may not be locked.

Swivel button S24M briefly to position "Release glue pot". The glue pot is released.

Slacken locknut (44.37) and turn the nut under it to adjust the position of lever (44.29).

Turning nut counter-clockwise: Glue pot moves towards the front.

Turning nut clockwise: glue pot moves towards the back.

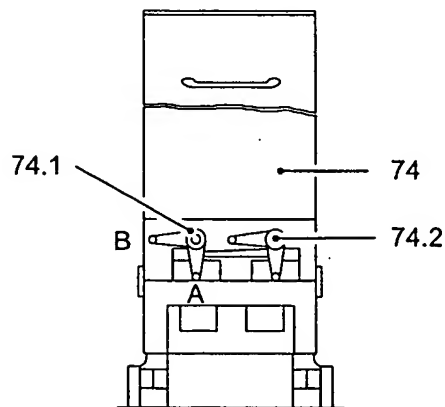
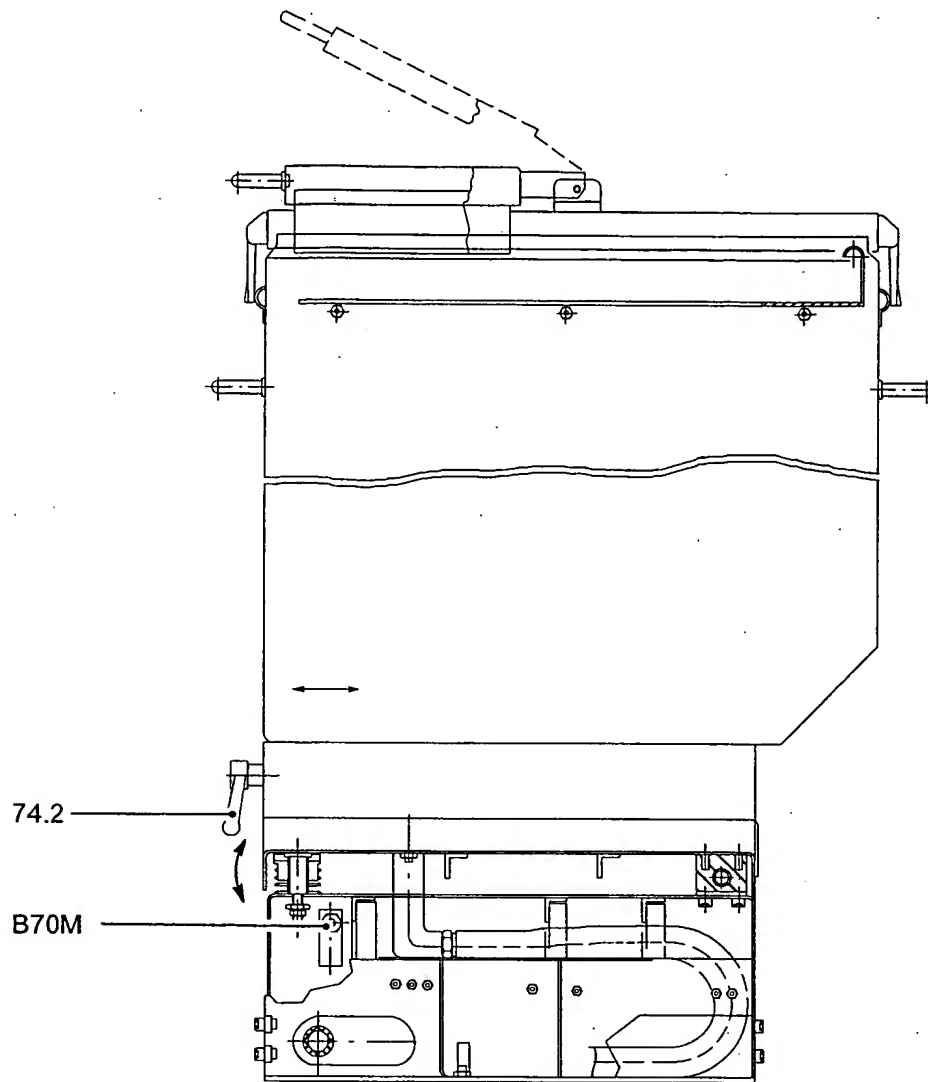
Lever (44.29) is slide-mounted on shaft (44.38). Pressure spring (44.39) pushes the lever against locknut (44.37), whereby axial movement is compensated for by the ball joint at the top of the lever.

Upon locking the glue pot is centred in the new position.

Note

Axial movement is only marginal.

Applicator roller (44.6) and glue roller (44.1) cannot be individually axially re-positioned.



Glue tank (74)

Glue is fed to the gluing unit from the glue tank, the tank has a capacity of approx. 40 litres.

The glue tank can be re-filled manually or, when fitted, from a central glue supply system.

The glue supply is monitored in the tank. If the glue level drops to 10 to 15 litres the warning message MAX GLUE SUPPLY appears.

To refill the glue tank, draw the tank out of the back of the machine and open the small hinged cover on the top.

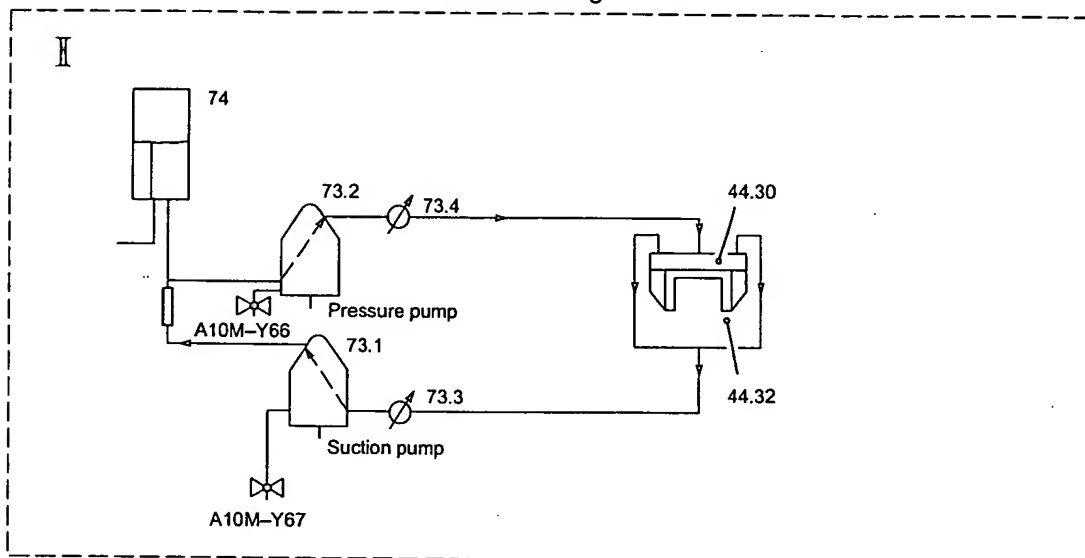
If the tank is to be removed for cleaning, levers (74.1 / 74.2) must be turned to position B. This causes the glue valves (feed and return) on the base of the tank to close and releases the locking mechanism.

Electrical components**B70M****Proximity switch****Monitors glue quantity in glue tank (74).****Preparing the glue feed**

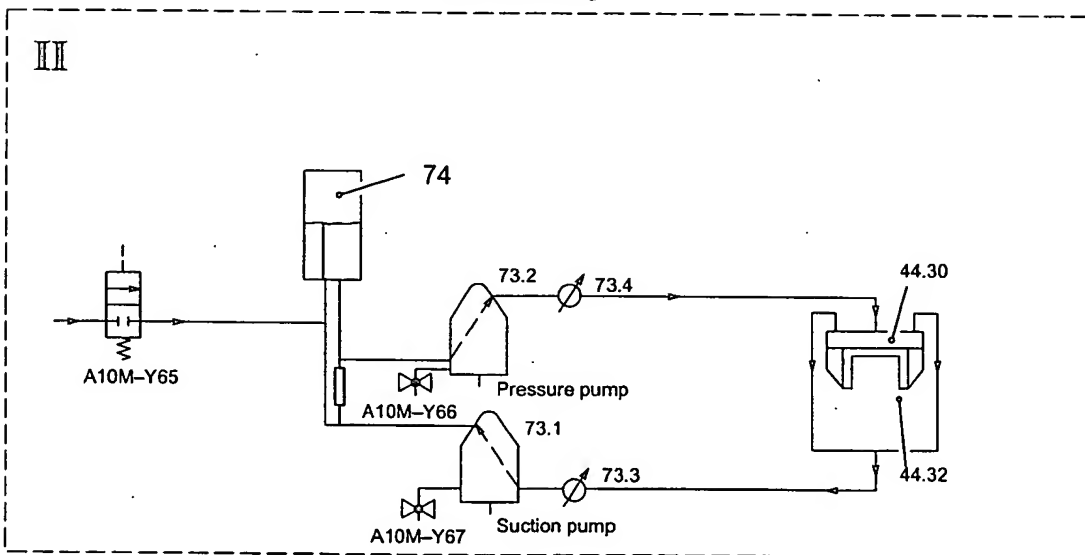
Check the level of the glue in the glue tank (74). If a skin has formed, remove this, and top up with more glue if required.

Check that lever (74.1 and 74.2) is set at A, i.e. that the glue valve is open and the tank is locked in position.

Manual filling



Central filling



**Glue circuit,
Glue pumps
(73.1) and (73.2)**

The glue circuit incorporates a pressure pump and a suction pump. Pressure pump (73.2) pumps the glue from glue tank (74) to glue chamber (44.32) via valve block (44.30). Suction pump (73.1) pumps the glue from glue chamber (44.32) back into glue tank (74). The glue is removed from the gluing chamber via lateral suction channels, it is transferred back to the tank via a vertical feed pipe. Pressure pump (73.2) runs in response to commands from photosensor B71M:
Glue feed ON : Glue feed OFF = 1 : 3
Suction pump (73.1) pumps at intervals of approx. 10 s, and remains activated only for approx. 0.5 s.

Note

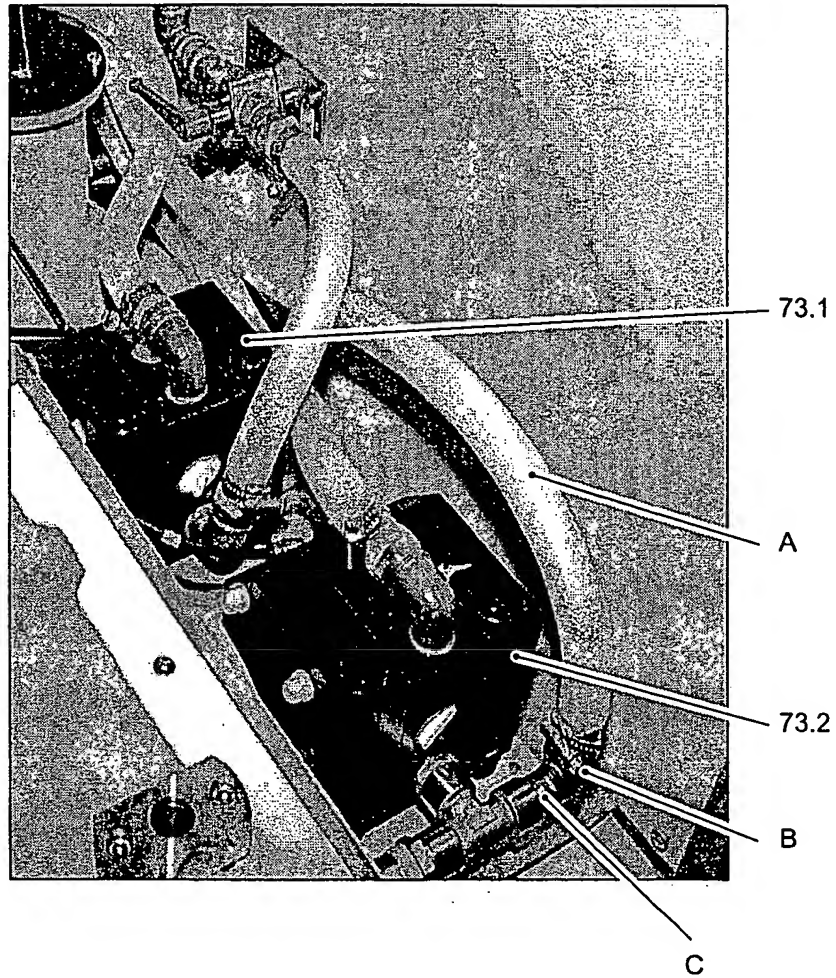


Normally, there is no glue in the glue pot!
The glue pot is only designed to catch surplus glue.

The glue pumps are compressed-air-controlled diaphragm-type pumps. The pumps operate when the air feed (approx. 2 bar) is applied. Valve A10M-Y67 powers suction pump (73.1) and valve A10M-Y66 powers pressure pump (73.2). Glue feed to the pumps can be cut off on stop cocks (73.3 , 73.4). The stop cock on pressure pump (73.2) is located on the pressure side, whilst on suction pump (73.1) it is located on the suction side. Suction pump throughput is only 1/5 of that of the pressure pump. An additional valve, A10M-Y65, is fitted when the glue feed is taken from a central glue supply system. Proximity switch B70M controls the feed from a central glue supply system via valve A10M-Y65. The infeed from the central glue supply system joins the glue flow from suction pump (73.1) and the two pass via the vertical feed pipe to the glue tank.

**Electrical
components**

A10M-Y65 (optional)	A10M-Y72	Controls glue feed from central glue supply to glue tank.
A10M-Y66	A10M-Y72	Controls glue feed from glue tank to glue pot.
A10M-Y67	A10M-Y72	Controls glue suction pump.
A10M-Y68	A10M-Y72	Controls glue feed to glue pot. (Valve block (44.30))



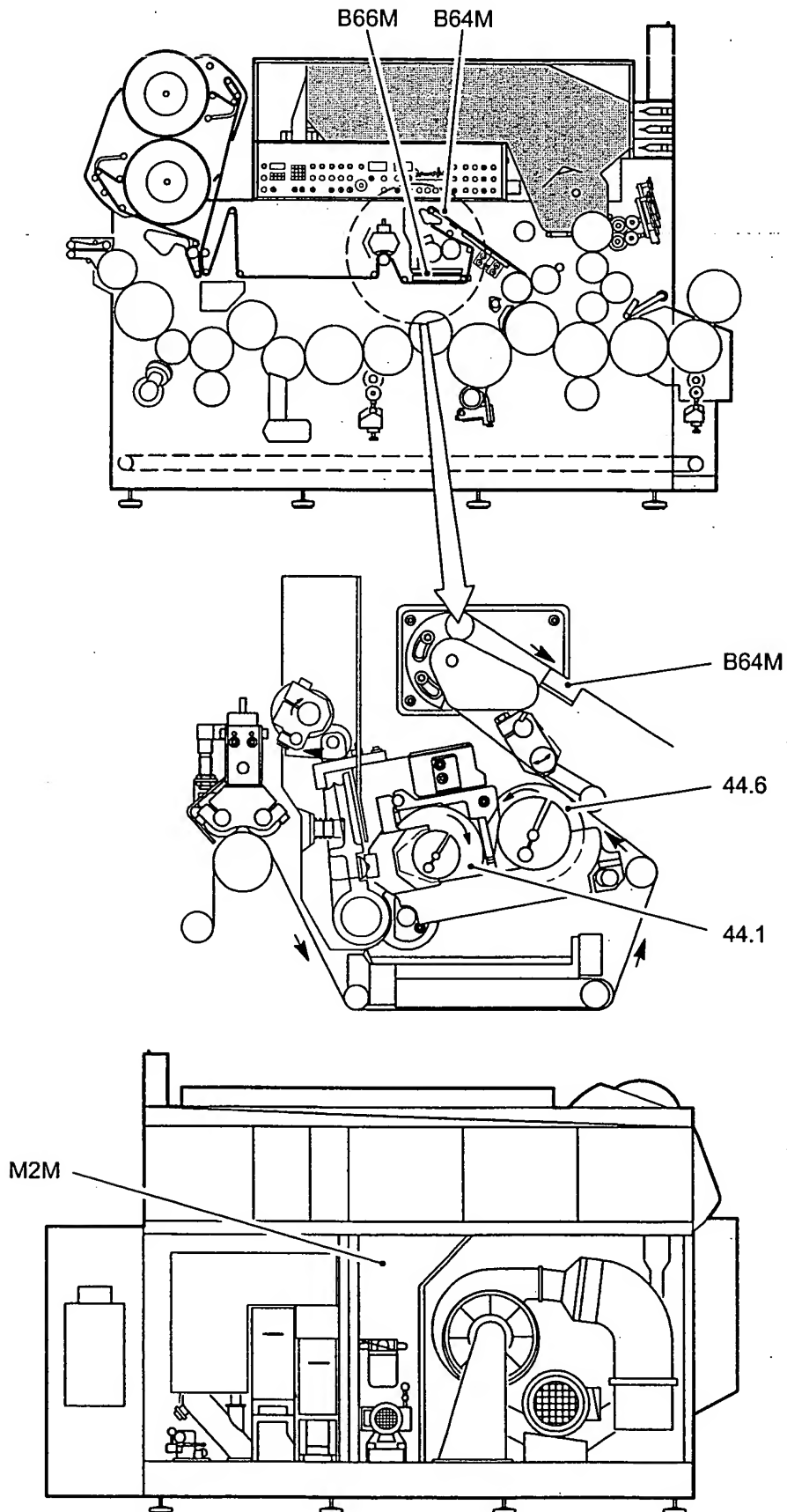
Ventilate glue circuit

The glue circuit must be ventilated under the following circumstances:

- The filters fall off.
- Glue no longer flows out continuously from the openings in the glue chamber.

To ventilate the glue circuit, procede as follows:

1. Slacken hose clamp (B) and pull off hose (A).
2. Close of pipe (C) with a pipe plug.
3. Lay the open end of hose (A) in a container.
4. Start the suction and pressure pumps at valves A8M–Y62 and A8M–Y67 und leave them running until glue flows continuously from the hose (A).
Allow about 2 l of glue to flow out.
5. Remove the pipe plug and re-attach hose (A) to pipe (C).



Glue roller (44.1) Via applicator roller (44.6), the glue roller transfers glue, either with or without a glue pattern to the tipping material. The stop message MAX NO GLUE appears if no glue is applied to the tipping.

The glue roller zero position is determined in order to control the position of the glue pattern on the tipping.

The glue roller continues to revolve slowly when the machine is stationary so that the glue ridge is maintained.

Electrical components	B64M	Proximity switch (cap)	Monitors presence of glue on tipping material.
	B66M	Proximity switch	Reports: glue roller in zero position.
	M2M	Motor	Powers the glue roller.

Setting

1. Glue roller without glue pattern:

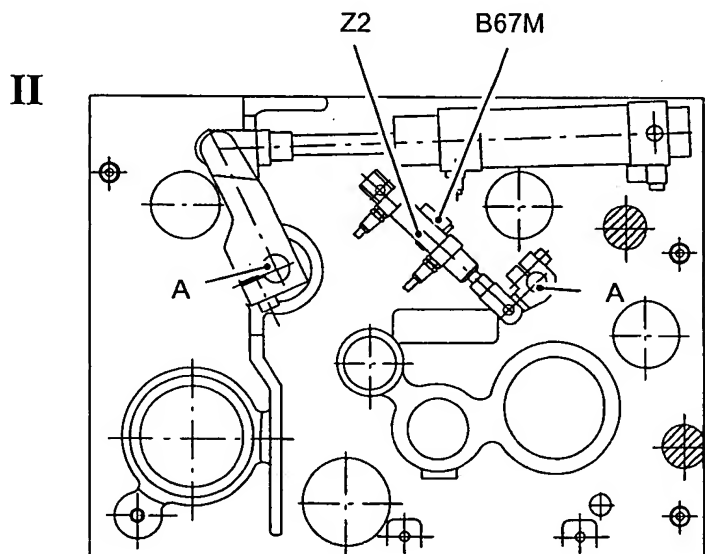
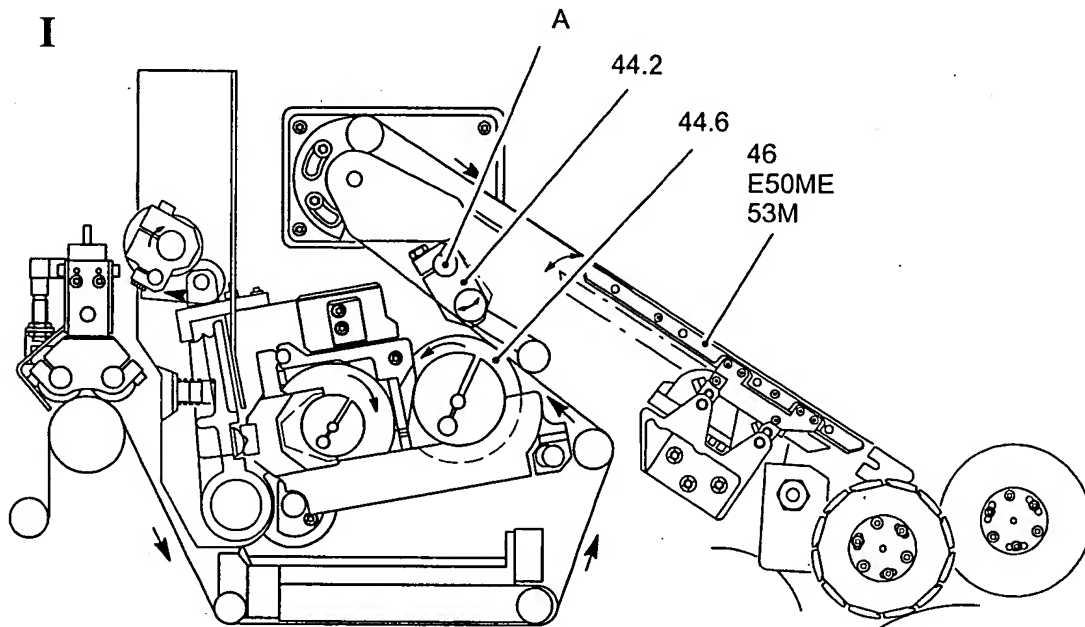
Glue roller advance - Parameter 551–504, (↑ 9 – 17)

2. Glue roller with glue pattern:

Glue pattern - Parameter 551–502, (↑ 9 – 15)

Glue pattern No. - Parameter 551–503, (↑ 9 – 17)

Relative glue pattern location - Parameter 552–64, (↑ 9 – 37)



Tipping lifter (44.2) The tipping lifter (44.2) presses the tipping against the applicator roller (44.6). The tipping lifter swings upwards to stop glue application when a stop occurs or when the machine is operated in setup mode. The tipping lifter lifting action is controlled by compressed air cylinder Z2.

If the tipping lifter fails to reach its work position valves Y4.1M, Y4.2M, Y4.3M blow to eject all cigarettes on the rolling drum (continuous ejection).

Note



When the tipping lifter is in its work position, proximity switch B67M must be actuated.

Electrical components

A9M-Y43

A10M-Y72

Pivots the tipping lifter (via cylinder).

B67M

Proximity switch

Reports: tipping lifter in work position.

Tipping heater (46) The tipping heater is used to pre-dry the glue on the tipping material, thereby ensuring the success of the gluing action on the rolling drum. Under certain operating conditions the tipping heater is swivelled clear of the tipping material pneumatically.

Under certain operating conditions the tipping heater is swivelled clear of the tipping material pneumatically. The swivel drive has an angular scale at the rear on which the maximum travel positions can be fixed on two cams, set the swivel to 75° to obtain 10 mm movement, i.e. the tipping heater is lifted 10 mm clear of the tipping material.

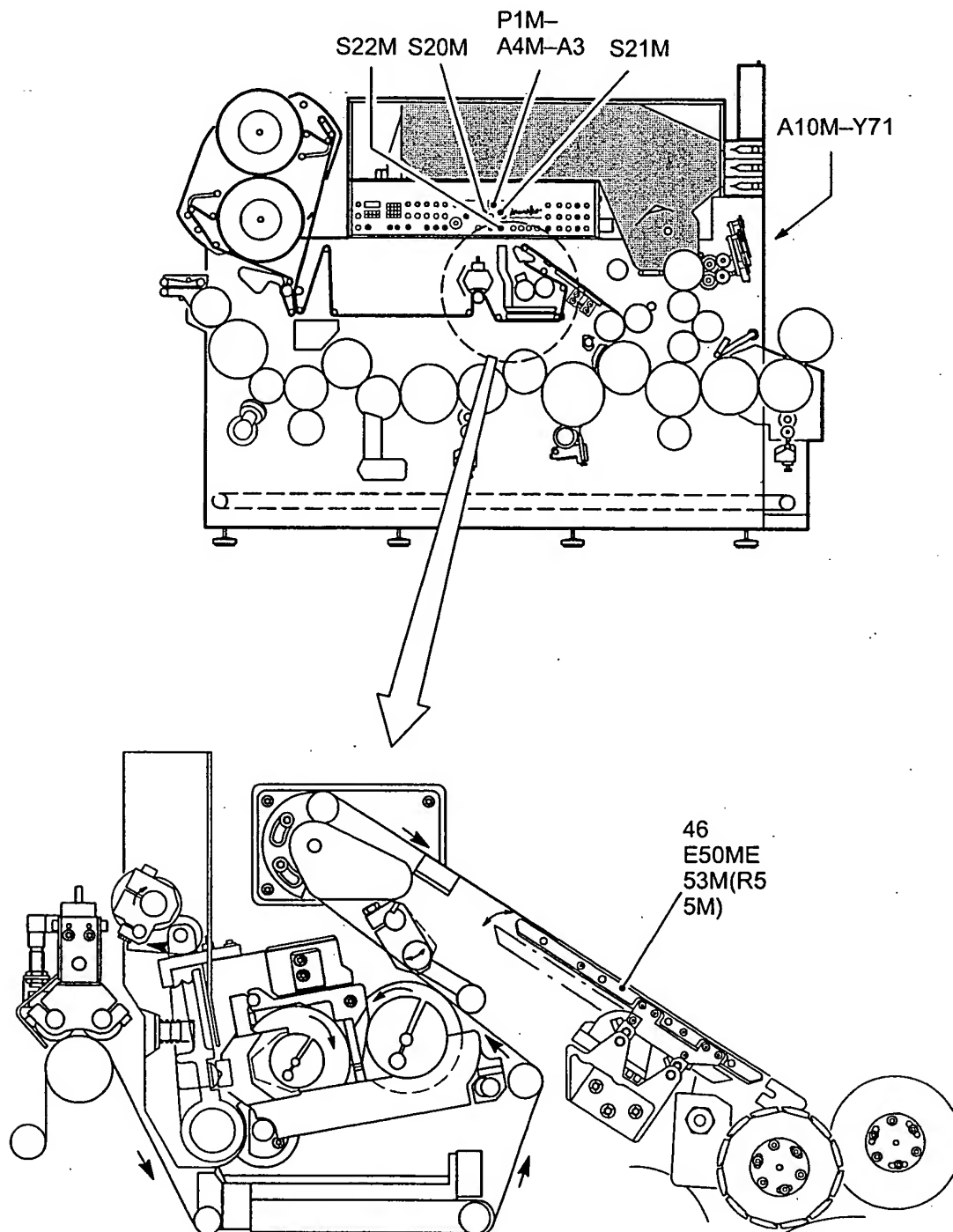
Ref. point: A3 = shaft driven by compressed air cylinder Z2, this shaft swivels tipping lifter (44.2).

The tipping heater remains in the raised position if the tension roller fails to transport the tipping or if the tipping moves too slowly. The tipping heater is swivelled into the work position when the MLP reaches the preset speed.

The temperature is brand-related and is set via the MLP, it can be altered on the control panel.

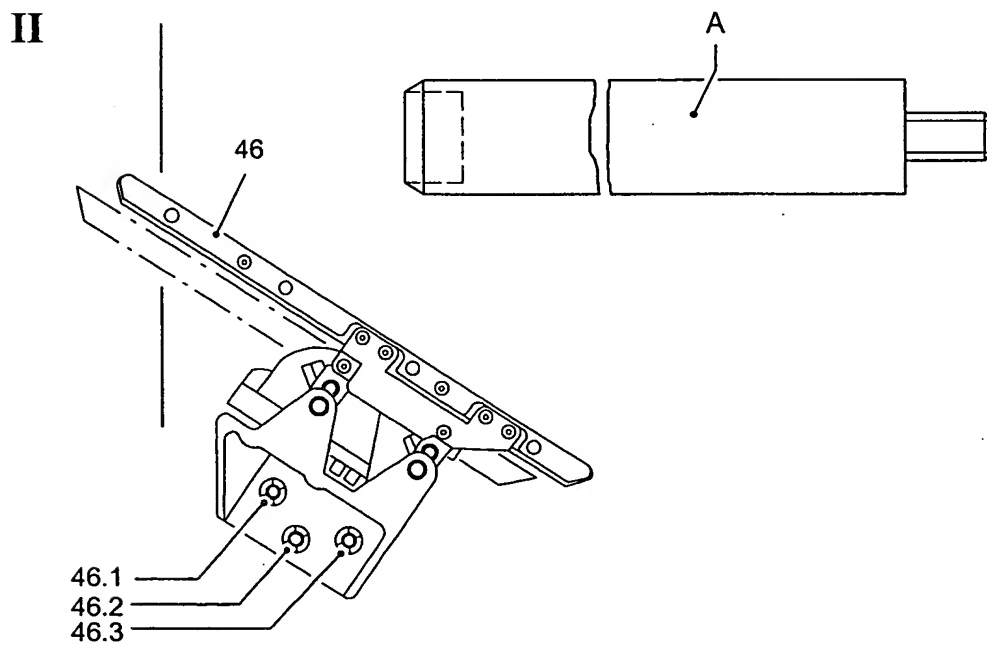
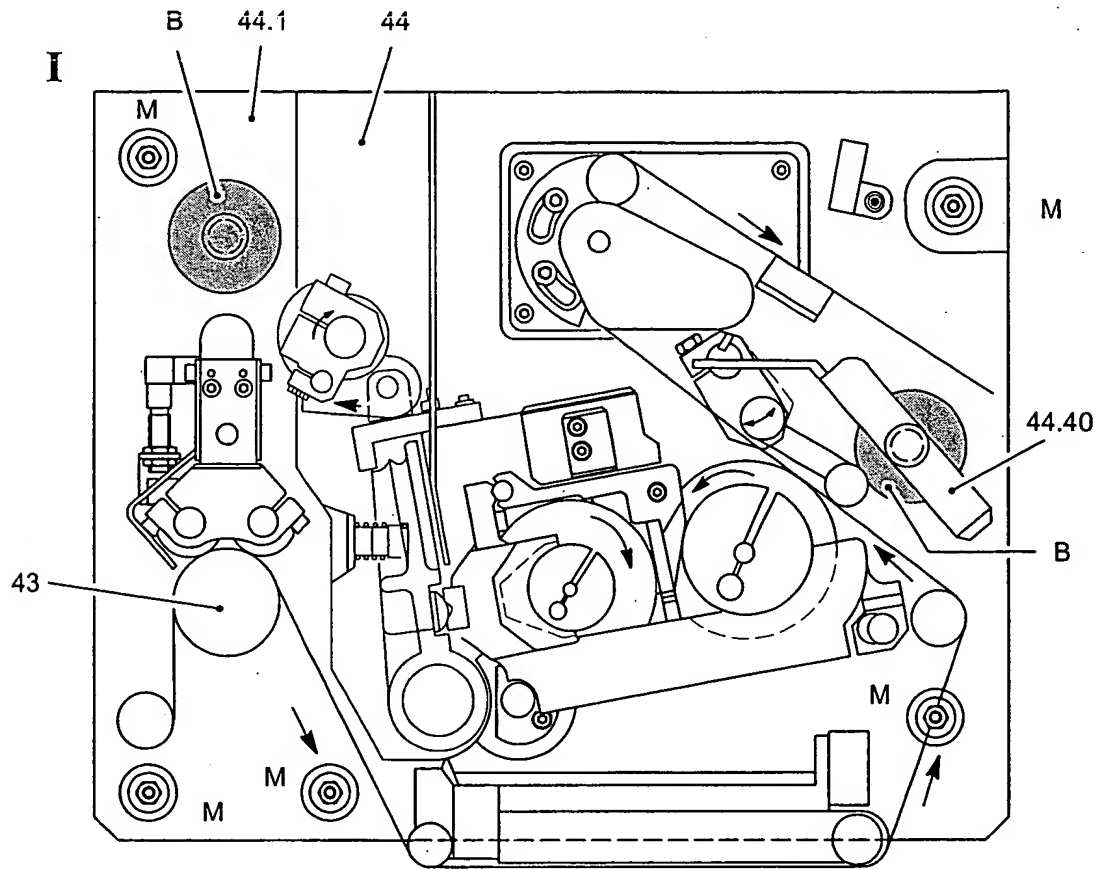
If the temperature rises above or falls below the setpoint by more than 20%, stop message MAX TIPPING TEMP appears.

If a heating or a temperature sensor fault occurs (e.g. wire-break) the stop message MAX TIPPING HEATER appears.



Tipping heater (46)

Control elements	P1M-A4M-A3	Display	Temperature of tipping heater
	S20M	Button	Display P1M-A4M-A3 measured temperature/setpoint temperature
	S21M	Switch	Reduce/raise temperature
	S22M	Switch	Heating OFF/display P1M-A4M-A3 Rolling block/tipping heater/optional
Other equipment	A10M-Y71	A10M-Y72	Swivels the tipping heater
	E50M-E53M	Heater	Tipping heater
	R55M	Temperature sensor	Temperature of tipping heater 1
Setting	Tipping heater ON/OFF - Parameter 552–56, (↑ 9 – 43) Tipping heater switch ON speed - Parameter 552–67, (↑ 9 – 49) Setpoint temperature - Parameter 551–506, (↑ 9 – 19)		
Option 1	A second tipping heater can be fitted if required.		
Electrical components	E55M-E58M (optional)	Heater	Tipping heater 2
	R56M (optional)	Temperature sensor	Measures the temperature of tipping heater 2
Setting	Setpoint temperature - Parameter 551–507, (↑ 9 – 19)		



**Gluing unit
mounting plate,
dismantling**

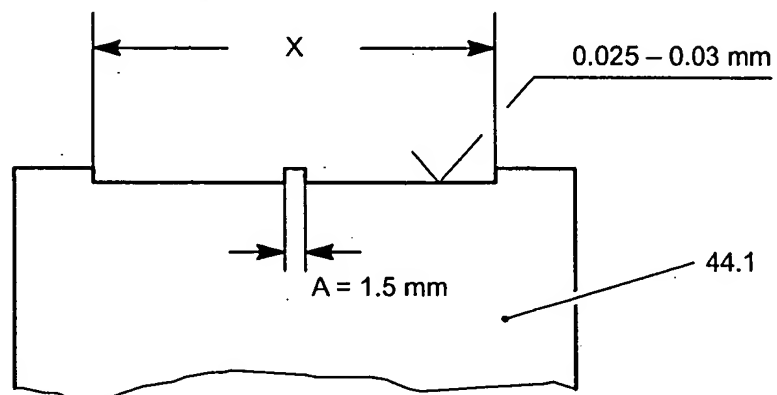
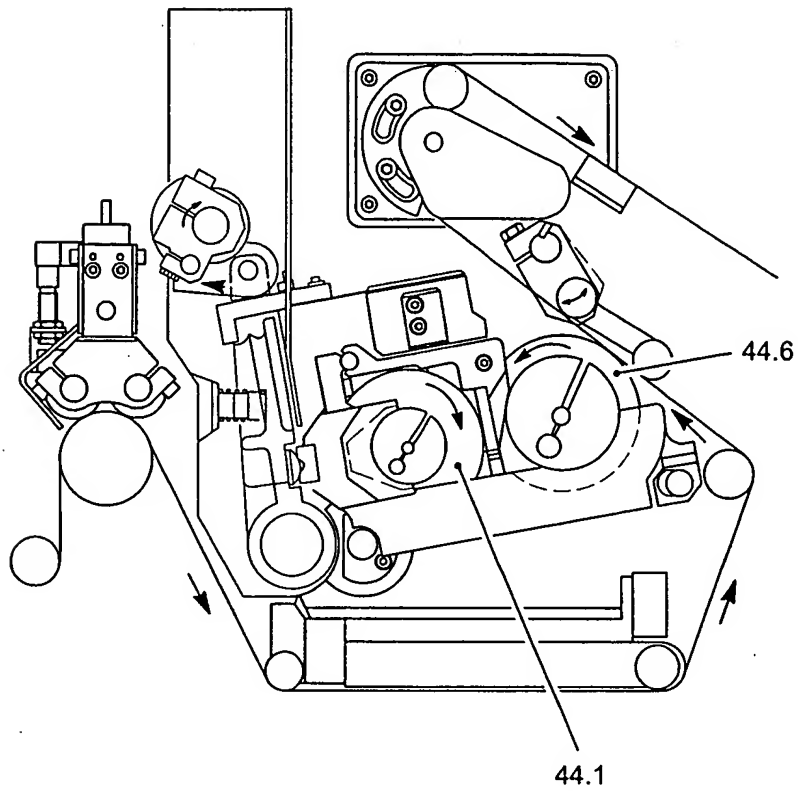
Tension roller (43) and gluing unit (44) are located on mounting plate (44.1).

1. Slacken and remove the glue pot.
2. Unscrew the plate under the control panel (3 screws).
Remove the tipping alignment control and proximity switch B64M.
3. Remove inclined cover (44.40).
4. Remove the covers on tapped holes (B).
Screw the two assembly rods with extension in the holes (B) tapped in the gearing wall for this purpose.
5. Remove the belt retaining disc on the oscillator. Remove the oscillator toothed belt (44.11) located behind the gluing unit (↑ 13 – 85), (located on right-hand side at rear of the machine, next to the compressed air plant). To do this, slacken tensioning roller (44.14).
6. Swing tipping heater (46) to one side. This entails removing securing screws (46.1, 46.2) and slackening (46.3).
7. Remove the five M10 securing screws in the mounting plate.
8. Working from the back of the machine, free the two glue hoses to the gluing unit.

Note

Glue spillage can occur.

9. Pull the mounting plate forwards on the assembly rods so that access is possible to the connections at the rear of the machine, disconnect as follows:
10. Disconnect the six compressed air lines for A10M-Y66, A10M-Y67, A10M-Y68, A10M-Y69, A10M-Y70, A9M-Y43. Connector unions are fitted to the compressed air lines.
11. Disconnect the following electrical lines: glue roller motor, fan motor, incremental shaft encoder, control electronics.
12. Finally, lift the entire assembly clear.



Glue roller (44.1) regrinding

The diameter of the glue roller (44.1) and that of the applicator roller (44.6) are almost identical, the ratio is 1 : 1.019. When these rollers are reground this ratio must remain the same, i.e. both roller diameters are reduced.

Required: If there is no sharp (clear) glue delineation line on the tipping material.

	Diameter	Minimum diameter	Diameter reduction per regrinding	Roller concentricity
Glue roller (44.1)	103.152 mm	102.2 mm	0.09 mm	0.01 mm
Applicator roller (44.6)	105.154 mm	104.0 mm	0.092 mm	0.005 mm

Observe the following points when regrinding the rollers:

- Grinding depth in glue application zone is 0.025 to 0.030 mm
- Middle ridge A = 1.5 mm wide must remain
- Glue application width is: X = bobbin width, (= width of tipping material),
- Glue application zone must have a sharp edge and must be ground to a constant depth.



Note

The rollers become unusable if they are ground down to less than the stated minimum diameter.

Reason:

When the glue pot is locked into position the moveable-mounted glue roller (44.1) moves slightly, in that it presses against the transfer roller (44.6). This produces a shift in the glue roller coupling as the glue roller moves in relation to the mid-point of the glue roller drive shaft. The glue roller coupling can compensate for this shift, but the maximum compensation is only 1 mm!